

REMARKS

This responds to the Office Action dated on July 24, 2007.

Claims 1, 11, 16, 22, 26, 41, and 44-45 are amended, claims 5, 12-13, 18-19, 28-40, and 43 are canceled, and no claims are added; as a result, claims 1-4, 6-11, 14-17, 20-27, 41-42, and 44-46 are now pending in this application.

Specification Objection

The specification was objected to as failing to provide proper antecedent basis for the claimed subject matter. Applicant has amended the specification to provide proper antecedent basis as suggested. Reconsideration and withdrawal of the objection are respectfully requested.

Claim Objections

Claim 13 was objected to due to an informality. The informality regarding claim identifier has been corrected as suggested. Reconsideration and withdrawal of the objection are respectfully requested.

§112 Rejection of the Claims

Claims 1, 5, 11, 12, 16, 18, 22 and 41 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Applicant respectfully submits that carrier fluids including halogenated hydrocarbons were sufficiently described under 35 U.S.C. § 112, first paragraph, however in order to move the application forward towards allowance, Applicant has amended claims 1, 11, 16, 22, 26, 41. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 1, 2, 5, 7, 9-12, 14, 16-18, 20, 22-25, 41, 42, 44 and 46 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection stated that “it is not clear whether the amount of carrier fluid or the amount of halogenated hydrocarbon is indicated.” Applicant has amended the pending independent claims, and respectfully submits that the amended claims are sufficiently definite under 35 U.S.C. § 112, second paragraph. Reconsideration and withdrawal of the rejection are respectfully requested.

The rejection further stated that “it is also not clear what Applicant regards as semiconductor surface and whether the semiconductor surface is related to the entire substrate/wafer or just to the side/surface to be developed.” Applicant respectfully submits that either possibility is included in the claims as presented, and that the breadth of the claims should not be equated with indefiniteness. Reconsideration and withdrawal of the rejection are respectfully requested.

§103 Rejection of the Claims

Claims 1, 2, 5, 7, 9-12, 14, 16-18, 20, 22-25, 41, 42, 44 and 46 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jackson et al. (U.S. Patent No. 5,013,366) in view of Tipton et al. (U.S. Patent No. 6,800,142). Applicant respectfully submits that the claims are not obvious for at least the following reasons.

The rejection states that Jackson teaches “cleaning contaminated substrate (col.7, lines 3-5) comprising suspending substrate in a liquid suspension medium (reads on ”a carrier fluid” as claimed), such as deionized water.” However, Jackson does not show a halogenated hydrocarbon carrier fluid in an amount sufficient to immerse the semiconductor surface. In contrast, independent claims 1, 11, 16, 22, and 41 as amended include a halogenated hydrocarbon carrier fluid in an amount sufficient to immerse the semiconductor surface.

The rejection further states that Tipton illustrates that use of halogenated hydrocarbons within densified/supercritical fluids to enhance removal of photoresist is conventionally known in the art.

Tipton appears to recite small amounts of additives of 0-15% by weight with listed additives being acetonitrile, ethanol, methanol, isopropanol, tetrahydrofuran, methylene chloride, chloroform, 1,2-dichloroethane, diethyl ether, hexane, toluene, benzene, xylene, tertiary butyl methyl ether, 1,4-dioxane, 1,2-diethoxyethane, 1,2-dimethoxyethane, ethylene glycol, propylene

glycol, ethyl lactate, acetic acid, trifluoroacetic acid, dimethylacetimide, N-methylpyrrolidinone, dimethyl formamide, dimethyl ethanolamine. However, Applicant is unable to find in Tipton any reference to additive in amounts sufficient to immerse a semiconductor surface. As taught in Applicant's specification, such amounts of carrier fluid permit gas bubble formation to enhance cleaning.

Because the cited references, either alone or in combination, do not show every element of Applicant's independent claims, a 35 USC §103(a) rejection is not supported by the references. Reconsideration and withdrawal of the rejection are respectfully requested.

Because Jackson does not show every element of Applicant's independent claims, a 35 USC §102(b) rejection is not supported. Reconsideration and withdrawal of the rejection are respectfully requested with respect to Applicant's independent claims 1, 11, 16, 22, and 41. Additionally, reconsideration and withdrawal of the rejection are respectfully requested with respect to the remaining claims at least as depending from allowable base claims.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 373-6944 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Reservation of Rights

In the interest of clarity and brevity, Applicant may not have addressed every assertion made in the Office Action. Applicant's silence regarding any such assertion does not constitute any admission or acquiescence. Applicant reserves all rights not exercised in connection with this response, such as the right to challenge or rebut any tacit or explicit characterization of any reference or of any of the present claims, the right to challenge or rebut any asserted factual or legal basis of any of the rejections, the right to swear behind any cited reference such as provided under 37 C.F.R. § 1.131 or otherwise, or the right to assert co-ownership of any cited reference. Applicant does not admit that any of the cited references or any other references of record are relevant to the present claims, or that they constitute prior art. To the extent that any rejection or assertion is based upon the Examiner's personal knowledge, rather than any objective evidence of record as manifested by a cited prior art reference, Applicant timely objects to such reliance on Official Notice, and reserves all rights to request that the Examiner provide a reference or affidavit in support of such assertion, as required by MPEP § 2144.03. Applicant reserves all rights to pursue any cancelled claims in a subsequent patent application claiming the benefit of priority of the present patent application, and to request rejoinder of any withdrawn claim, as required by MPEP § 821.04.

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.116 – EXPEDITED PROCEDURE

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Serial Number: 10/681,481

Dkt: 1303.112US1

Filing Date: October 8, 2003

Title: **METHOD OF CLEANING SEMICONDUCTOR SURFACES**

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 26 day of November 2007.

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